

The Files

26 March 1959

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Trip Report - Conference with [REDACTED] Representatives

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1. On 19 March 1959 we attended a conference at Headquarters with three representatives from [REDACTED] The following were present:

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2. The purpose of the conference was to gain information from [REDACTED] on the subject of "Magnetic Storage Devices." The following facts relating specifically to twistors were learned:

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- (a) Twistors, having no minor loops, are capable of receiving an indefinite number of half-amplitude H pulses without deleterious effect on state.
- (b) A technique exists for non-destructive readout. It employs two solenoids per letter; one wound to a relative large width, the other narrow. The wide one is used for writing and for destructive readout, the narrower is used for non-destructive readout. It switches only the center portion of the bit region, which by itself subsequently resumes its information state due to pull from the outer portions.
- (c) Although normal computer requirements call for parallel write and read, there is no reason apparent why either serial read or serial write or both could not be used. Serial read would be of advantage to us.
- (d) Attempts to use the twistor as a shift-register component have been none too successful, but are continuing.

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- (e) The open structure of a twistor both produces, and is affected by, external fields. This dictates spacing of letters (solenoids) at least 0.25" center-to-center, spacing of twistor wires at least 0.10", and vertical spacing between twistor layers of at least 0.10". With the above considerations, a 50 group memory would occupy 5" x 1 1/2" x 1/2" (memory only, present-day twistors).
- (f) [redacted] in addition to supplying twistor wires assembled and encapsulated in tape, can supply the more complete assembly of twistors plus solenoids in a similar form, with solenoid terminals along one edge.
- (g) It was suggested by the R&D Lab engineers that the assembly be sandwiched between mu-metal (or "netic") foils. This would (1) exclude external fields (2) permit closer layer spacing and (3) condense the internal write-and-read fields, thereby reducing drive requirements and permitting closer letter spacing. The representatives looked interested but said they hadn't tried it.
- (h) The impression received was that [redacted] was quite close to large-scale production (perhaps two months).
- (i) The twistor offers the following advantages over other means of storage: has more fabrication ruggedness, is unaffected by half-amplitude cycling, and has a convenient configuration for storage of four or five-bit letters. Also the letter solenoids offer constant impedance to a driving source regardless of state.

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3. Although the Lab engineers were very interested in multiple-apertured devices (MAD's) for driving the memory, no definite information could be had on the present status of 3-to-1 aperture POSITIVE elements (a relatively simple configuration described by Crane in January 1959 IRE Proceedings as being practical for production). The representatives did, however, agree to supply some samples for experimentation.

4. It appears to us that the twistor is the most promising of the different memory storage devices that can be obtained, if it actually can be obtained in the near future.

Lab/JCT/JHS/rkb (26 March 1959)

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